ATTACHMENT 2

APPLICATION OF ENDANGERED SPECIES ACT STANDARDS TO SNAKE RIVER SALMON

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Introduction

The National Marine Fisheries Service (NMFS) evaluates the effects of proposed Federal actions on the listed Snake River salmon in section 7 consultations by applying the standards of § 7(a)(2) of the ESA, as given in 16 U.S.C § 1536(a)(2), and as interpreted by the NMFS/U.S. Fish and Wildlife Service (FWS) joint consultation regulations (50 CFR Part 402). The discretionary continuation of an action is considered to be a proposed action. When NMFS issues its biological opinion, it uses the best scientific and commercial data available to determine whether a proposed Federal action is likely to (1) jeopardize the continued existence of a listed species, or (2) destroy or adversely modify the designated critical habitat of a listed species. See ESA § 7(a)(2).

The consultation regulations define "jeopardize the continued existence of" to mean:

> ...to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species (50 C.F.R. § 402.02).

The regulations also define the statutory term "destruction or adverse modification" of critical habitat to mean:

> . . . a direct or indirect alteration that appreciably diminishes the value of critical habitat for both the survival and recovery of a listed species. Such alterations include, but are not limited to, alterations adversely modifying any of those physical or biological features that were the basis for determining the habitat to be critical. (50 C.F.R. § 402.02)

Additionally, NMFS and FWS have issued a document that further describes the application of these standards; it is entitled "Draft Section 7 Endangered Species Consultation Handbook -- Procedures for Conducting Section 7 Consultations and Conferences," (NMFS/USFWS 1995) (hereinafter referred to as "the Draft Handbook").

The Draft Handbook defines the regulatory terms "survival" and "recovery," as they relate to analyzing jeopardy and critical habitat, as follows:

> **Survival**: the species' persistence, beyond conditions leading to its endangerment, with sufficient resilience to allow recovery. Said another way, survival is the condition in which a species continues to exist into the future while retaining the potential for recovery. This condition is characterized by a species with a sufficiently large population, represented by all age classes, genetic heterogeneity, and a number of sexually mature individuals producing viable offspring, that exists in an environment providing all requirements for completion of the species' entire life cycle, including reproduction, sustenance, and shelter.

> **Recovery:** improvement in the status of a species and the ecosystems upon which they depend. Said another way, recovery is the process by which species' ecosystems are restored so they can support self-sustaining and self-regulating populations of listed species as persistent members of native biotic communities.

In implementing these standards for Pacific salmon species, NMFS recognizes certain characteristics of the species' require special consideration. The Columbia River Basin, in which the Snake River salmon originate, drains a vast area of the Pacific Northwest. The basin is approximately 259,000 square miles in size; it drains much of the area of Washington, Oregon, and Idaho, as well as parts of Montana, Nevada, Utah, Wyoming and British Columbia. The listed salmon are born in small mountain streams, lakes and rivers (depending on the species) of the Snake River system in Idaho and eastern Oregon and Washington. Their eggs are deposited and fertilized by spawning adults and incubate within gravel substrates. They emerge from the gravel and rear for a time before they begin, as yearlings or subyearlings, their migration down the mainstems of the Snake and Columbia River systems to the Pacific Ocean. There, they range from the mouth of the Columbia River in all directions. The listed species grow to adult size in the ocean and then complete their life cycle by reversing their migration, moving up the Columbia and Snake Rivers and returning to their natal habitat to spawn the next generation.

Stages of the Analysis

For each consultation concerning the Snake River salmon, NMFS performs the following analysis in applying ESA standards to these unique creatures.

1. Define the biological requirements of the listed species.

To determine whether a proposed or continuing action is likely to jeopardize the continued existence of a listed species or adversely modify its habitat, it is first necessary to know what the species requires for continued existence. (The regulations more specifically express this in terms of the species' survival and recovery.) The Snake River salmon's biological requirements may be described in a number of different ways: For example, they can be expressed as a ratio of recruits to spawners, as a survival rate for a given life stage (or set of life stages), as a positive population trend, or as a threshold population size. Biological requirements may also be described as the environmental conditions necessary to ensure the species' continued existence, and these can be expressed in terms of physical, chemical, and biological prerequisites (e.g., for a particular river reach, the prerequisites would include water temperature and velocity, dissolved gas saturation, etc.). The manner in which these requirements are described varies according to the nature of the action under consultation and its likely effects on the species. For example, in the consultation on the Federal Columbia River Power System (FCRPS) (NMFS 1995a), biological requirements are couched primarily in terms of individual salmon mortalities; whereas in a consultation on an action in spawning and rearing habitat, the biological requirements might be defined by changes in environmental conditions.

2. Evaluate the relevance of the environmental baseline to the species' current status.

The environmental baseline represents a basal set of conditions to which the effects of the proposed or continuing action would be added. It "includes the past and present impacts of all Federal, State, or private activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultation, and the impact of State or private actions which are contemporaneous with the consultation in process." See 50 C.F.R. § 402.02, definition for "effects of the action." Under this definition, the environmental baseline would not include future discretionary activities (that have not undergone ESA consultation) in the action area. Thus, the species' current status is described in relation to the risks presented by the continuing effects of all previous actions and resource commitments that are not subject to further exercise of Federal discretion. For a new project, the environmental baseline represents the risks entailed by conditions in the action area that exist before the proposed actions begins. For an ongoing Federal action, it is necessary to evaluate the effects of previous resource commitments separately from the effects that would be caused by that action's proposed continuance.

Delineating the "action area" for the proposed or continuing action should be an initial consideration in identifying the environmental baseline. The regulations specify that the environmental baseline of the action area should be used in making the jeopardy determination. The "action area" is defined by the consultation regulations as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action" 50 CFR §402.02.

The reason for determining the species' status under the risks presented by the environmental baseline (without the effects of the proposed or continuing action) is to better understand the relative significance of the action's effects upon the species' likelihood of survival and chances for recovery when those effects are added to the environmental baseline. The greater the risks the species face at the time of consultation, the more significant any additional adverse effects caused by the proposed or continuing action will be.

3. Determine the effects of the proposed or continuing action on listed species.

In this step of the analysis, NMFS examines the likely effects of the proposed action on the species. The analysis may consider the impact in terms of how many listed salmon will be killed during a particular life stage (and that mortality's effect upon the species' population size and variability), or the analysis may consider the impact on the species' biological requirements, such as water temperature, sediment load, total dissolved gas levels, etc. These are the effects that could be within the action agencies' discretion to cause or not. This decision is influenced by NMFS' advice in its biological opinion.

4. Determine whether the species can be expected to survive (with an adequate potential for recovery) under the effects of the proposed or continuing action, the environmental baseline and any cumulative effects, and considering any measures to increase survival or promote recovery that are taking place with respect to other life stages.

In this step of the analysis, NMFS determines whether the specific action under consultation is likely to jeopardize the continued existence of the listed species. This step has two parts: First, NMFS focuses on the action area and adds the effects of the proposed or continuing action to those of the environmental baseline (and all cumulative effects). The NMFS must determine the significance of that aggregate effect upon the particular biological requirements of the listed species in the action area. In this step, NMFS considers effects such as the frequency of individual mortality and any sublethal effects caused by the action or occurring through the action's adverse modification of environmental conditions important to the species.

In the second part of the analysis, NMFS places the effects of the proposed or continuing action in the context of the full salmon life cycle. This comprehensive analysis is necessary to evaluate fully the significance of each action under consultation with respect to the biological requirements of the listed species in all life stages. The NMFS looks beyond the particular action area for this analysis in order to determine measures likely to be necessary in all life stages and that, in combination, would ensure that the biological requirements of the listed species are met.

At the species level, NMFS believes that the biological requirements for survival (and an adequate potential for recovery) are met when there is a high likelihood that the species' population will remain above critical escapement thresholds over a sufficiently long period of time. Additionally, the species must have a moderate to high probability of achieving its recovery population level within an adequate period of time. The particular thresholds, recovery levels, and time periods must be based upon the characteristics and circumstances of each salmon species under consultation.

The NMFS Proposed Recovery Plan for listed Snake River salmon (NMFS 1995b) calls for measures in each life stage that are based upon the best available scientific information concerning the listed species' biological requirements. The statutory goal of the recovery plan is to conserve the species so they can, at minimum, survive. It must also attempt to add all life-stage specific measures together in such a manner as to bring about the species' recovery. For this reason, the Recovery Plan is the best source for the measures that are necessary in each life stage for meeting the biological requirements of the species throughout their life cycles.

The listed Snake River salmon face circumstances, where their current status, as affected by environmental baseline, is such that there is a low expectation of survival with an adequate potential for recovery. Therefore, the proposed or continuing actions must reduce the risk of adverse effect in the action area to ensure that the likelihood of the species' survival and recovery

is not appreciably diminished. The amount of risk reduction necessary to determine that the action will not be likely to jeopardize the listed species depends upon the current status of the species. Again, the Recovery Plan is the best source of the actions and information needed to make improvements in each life stage sufficient to satisfy the requirements of Section 7(a)(2). Therefore, NMFS will first consider whether the proposed action is consistent with the Recovery Plan. If not, NMFS will consider whether the proposed action reduces the risks to the listed species as much as or more than the Recovery Plan.

5. Identify reasonable and prudent alternatives to a proposed or continuing action that is likely to jeopardize the continued existence of the listed species.

If the proposed or continuing action is likely to jeopardize the listed species, NMFS must consider potential reasonable and prudent alternatives that would comply under Sec. 7(a)(2) of the ESA. In that case, the Proposed Snake River Salmon Recovery Plan which lays out measures "for the conservation and survival of endangered species," under § 4(f)of the ESA, is the best source of reasonable and prudent alternatives that the action agency may implement and thereby meet its obligations under ESA § 7(a)(2).

References

National Marine Fisheries Service (NMFS). 1995a. Biological opinion on the reinitiation of consultation on 1994-1998 operation of the Federal Columbia River Power System and Juvenile Transportation Program in 1995 and future years. March 1995. Available from: NMFS, Northwest Region, 7600 Sand Point Way N.E., BIN C15700 Bldg. 1, Seattle, Washington 98115.

National Marine Fisheries Service (NMFS). 1995b. Proposed Recovery Plan for Snake River Salmon, March 1995. Available from: NMFS, Northwest Region, 7600 Sand Point Way N.E., BIN C15700 Bldg. 1, Seattle, Washington 98115.

National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS). 1994. Draft section 7 endangered species consultation handbook--procedures for conducting section 7 consultations and conferences. 59 Federal Register 65781. December 21.